# The TRIC Experiment: A P-even Time Reversal Invariance Test at COSY

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At the cooler synchrotron COSY at Juelich a novel (P-even, T-odd) true nulltest was proposed that is supposed to measure the time-reversal invariance sensitive observable {Con91} to an accuracy of $10^{-6}$. The observable of interest is the total cross-section asymmetry $A_{y,xz}$, which is measured in an transmission experiment of a circulating vector polarized ($P_y$) proton beam through an internal tensor polarized ($P_{xz}$) atomic deuteron target {Eve92}. An analysis of possible systematic error sources shows that a dominant systematic error contribution is expected to arise from the observable $A_{y,y}$. For this to happen, the atomic-beam has to be misaligned and in addition the tensor polarized deuteron beam has to be impaired by a small fraction (a few percent) of vector polarized deuterons.

This experiment uses the COSY facility in three respects: As an accelerator, as an ideal forward spectrometer and as an detector. The first tests aiming to prove the feasibility of the proposed novel method have been finished. The results of these promising tests as well as further necessary improvements of the experiment to measure $A_{y,y}$ and finally $A_{y,xz}$ will be discussed.

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